SEQUENCE LISTING

<110> Kawaoka, Yoshihiro

<120> VIRUSES COMPRISING MUTANT ION CHANNEL PROTEIN

<130> 800.026US1

<150> US 60/197,209
<151> 2000-04-14

<160> 35

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 1
aagagggtca cttgaatcg                                                    19

<210> 2
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 2
actgttgctg cgagtatc                                                    18

<210> 3
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 3
gttgttgctc caactatc                                                    18

<210> 4
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 4
gttgttgctg cgaacatc                                                    18

```
<210> 5
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 5
gttgttatca ttgggatctt gc                                              22

<210> 6
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 6
cccaatgata ctcgcagc                                                   18

<210> 7
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 7
atcttgcact tgatattggc aattc                                           25

<210> 8
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 8
caccagtgaa ctggcgacag ttgagtagat cgccagaatg tcacttgaat cgttgcatct     60
gc                                                                    62

<210> 9
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 9
cttttggtct ccctgggggc aatcagtttc tggatggatc gtcttttttt caaatgc         57

<210> 10
<211> 68
```

<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 10
gcttagtatc aattgtattc catttatgat tgatatccaa atgctgtcac ttgaatcgtt      60
gcatctgc                                                                68

<210> 11
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 11
attataggag tcgtaatgtg tatctcaggg attaccataa tagatcgtct tttttttcaaa     60
tgc                                                                     63

<210> 12
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> A sequence from the pHH21 vector

<400> 12
gggttattgg agacggtacc gtctcctccc ccc                                    33

<210> 13
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> The end of a PCR product

<221> misc_feature
<222> (1)...(18)
<223> n = A, T, C or G

<400> 13
cgtctcntat tagtagaa                                                     18

<210> 14
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> The end of a PCR product

<221> misc_feature
<222> (1)...(16)

<223> n = A, T, C or G

<400> 14
ttttgctccc ngagac                                                    16

<210> 15
<211> 11
<212> DNA
<213> Artificial Sequence

<220>
<223> The end of a PCR product following digestion with
      BsmBI

<400> 15
tattagtaga a                                                         11

<210> 16
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> The end of a PCR product following digestion with
      BsmBI

<400> 16
gggagcaaaa                                                           10

<210> 17
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> A sequence from the pHH21 vector including
      influenzal viral cDNA that was cloned into the
      vector

<400> 17
gggttattag tagaa                                                     15

<210> 18
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> A sequence from the pHH21 vector including
      influenzal viral cDNA that was cloned into the
      vector

<400> 18
ttttgctccc ccc                                                       13

<210> 19
<211> 80
<212> DNA

<213> Artificial Sequence

<220>
<223> A primer

<400> 19
cacacacgtc tcgtattagt agaaacaagg tcgttttttaa actattcgac actaattgat          60
ggccatccga attcttttgg                                                         80

<210> 20
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 20
cacacacgtc tccgggagcg aaagcaggtc aattatattc aatatggaaa gaataaaaga          60
actaagg                                                                       67

<210> 21
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 21
cacacacgtc tcgtattagt agaaacaagg catttttttca tgaaggacaa gctaaattca          60
ctatttttgc cgtctgagct cttcaatgg                                              89

<210> 22
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 22
cacacacgtc tccgggagcg aaagcaggca aaccatttga atggatgtca atccgacttt          60
acttttc                                                                       67

<210> 23
<211> 103
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 23
ccaacccgtc tcctattagt agaaacaagg tactttttttg gacagtatgg atagcaaata          60
gtagcattgc cacaactatc tcaatgcatg tgtgaggaag gag                              103

<210> 24

```
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 24
ccaacccgtc tccgggagcg aaagcaggta ctgattcaaa atggaagatt ttgtgcgaca        60
atgcttc                                                                  67

<210> 25
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 25
cacacacgtc tcctattagt agaaacaagg gtgttttttcc                             40

<210> 26
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 26
cacacacgtc tccgggagca aaagcagggg aaaataaaaa caacc                        45

<210> 27
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 27
cacacacgtc tcctattagt agaaacaagg gtatttttct ttaattg                      47

<210> 28
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 28
cacacacgtc tccgggagca aaagcagggt agataatcac tc                           42

<210> 29
<211> 46
<212> DNA
```

6

<213> Artificial Sequence

<220>
<223> A primer

<400> 29
cacacacgtc tcctattagt agaaacaagg agttttttga acaaac                    46

<210> 30
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 30
cacacacgtc tccgggagcg aaagcaggag tttaaatgaa tccaaacc               48

<210> 31
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 31
cacacacgtc tcctattagt agaaacaagg tagttttta ctccagc                  47

<210> 32
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 32
cacacacgtc tccgggagca aaagcaggta gatattgaaa g                        41

<210> 33
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> A primer

<400> 33
cacacacgtc tcctattagt agaaacaagg gtgttttta ttattaaata agc          53

<210> 34
<211> 46
<212> DNA
<213> Artificial Sequence

<220>

<223> A primer

<400> 34
cacacacgtc tccgggagca aaagcagggt gacaaagaca taatgg                46

<210> 35
<211> 19
<212> PRT
<213> Influenza A virus

<400> 35
Pro Leu Val Val Ala Ala Ser Ile Ile Gly Ile Leu His Leu Ile Leu
 1               5                   10                  15
Trp Ile Leu